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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/779,285	02/08/2001	William H. Gong	37,248	6593

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EXAMINER
GRIFFIN, WALTER DEAN

ART UNIT	PAPER NUMBER
1764	

DATE MAILED: 04/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/779,285	GONG ET AL.	
	Examiner	Art Unit	
	Walter D. Griffin	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspond nce address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 February 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Amendment

The declaration filed on February 10, 2003 under 37 CFR 1.131 is sufficient to overcome the Rappas (US 6,402,940) reference.

The rejections as described in paper no. 6 have been withdrawn in view of amendment filed on February 10, 2003 and the declaration. Accordingly, the arguments concerning these rejections will not be addressed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-13 and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Malisoff (1,971,102) in view of Hatanaka et al. (6,217,748) and Gore (US 6,274,785).

The Malisoff reference discloses a process for removing sulfur compounds from hydrocarbon oils by contacting the oil with a mixture of water, hydrogen peroxide, and organic acid such as acetic acid. Specific hydrocarbons disclosed include naphtha, gasoline, and gas oil. These hydrocarbons would necessarily have an API gravity and boil within the ranges claimed. Example 1 indicates a temperature of 90°F (32°C). After contacting, the mixture and oil separate into layers. The layers are then separated and the oil is recovered. See page 1, lines 6-32 and 49-68.

The Malisoff reference does not disclose the preliminary hydrotreating step, does not disclose the presence of nitrogen in the hydrocarbon, and does not disclose treating and recycling the separated immiscible phase.

The Hatanaka reference discloses a process for removing sulfur from a hydrocarbon by hydrotreating the hydrocarbon feed and then separating the hydrotreated feed into a light and heavy fraction. The hydrotreating catalyst contains Group VI (10-30 wt%) and VIII (1 to 10 wt%) metals. The light fraction scarcely contains sulfur and can be used without further desulfurization. The heavy fraction must be further desulfurized. The further desulfurized heavy fraction and the light fraction are mixed to form a desulfurized product. See col. 2, lines 65-67; col. 3, lines 1-11; col. 4, lines 11-48; col. 5, lines 3-7; and col. 6, lines 11-24.

The Gore reference discloses treating and recycling the oxidant. Gore also discloses treating the organic phase with a solvent such as methanol. Gore also discloses that nitrogen compounds can be removed by the oxidation treatment. See col. 4, line 47 through col. 5, line 6; col. 7, line 45 through col. 8, line 37; col. 9, lines 5-20; col. 11, line 50 through col. 12, line 22; and col. 14, lines 36-39.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Malisoff by including a preliminary hydrotreating step as suggested by Hatanaka and further desulfurizing the heavy fraction of Hatanaka because only this portion of the hydrotreated feed would need to be further desulfurized by the oxidation treatment thereby reducing costs associated with the oxidation treatment. Also, substituting the oxidation treatment of Malisoff for the second hydrotreatment of Hatanaka would have been obvious to one having ordinary skill in the art because these two treatments produce an equivalent result. Therefore, substituting one for the other would produce a process that would effectively desulfurize the hydrocarbon.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have treated and recycled the oxidation phase as suggested by Gore because recycling will improve the economics of the process.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized a solvent such as methanol in the process of Malisoff as suggested by Gore because a purified organic phase will be obtained.

Regarding the presence of nitrogen compounds in the feed, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a feed that

contains nitrogen compounds because the presence of nitrogen compounds would not affect the removal of sulfur compounds and because the nitrogen compounds will also be removed.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Malisoff (1,971,102) in view of Hatanaka et al. (6,217,748) and Gore (US 6,274,785) as applied to claim 12 above, and further in view of GB 2262942A.

The previously discussed references do not disclose treating the organic phase with an alumina adsorbent.

The GB reference discloses the treatment of a treated oil with an alumina adsorbent. See page 16, lines 16-18.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to treat the oil with a sorbent such as alumina because an oil with a lowered sulfur content will be obtained.

Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Malisoff (1,971,102) in view of Hatanaka et al. (6,217,748) and Gore (US 6,274,785) as applied to claim 12 above, and further in view of Webster et al. (US 3,163,593).

The previously discussed references do not disclose the treatment of the oil with a basic chemical.

The Webster reference discloses the treatment of an oil obtained from an oxidizing process with an alkaline material. See col. 2, lines 51-53.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the previously discussed references by treating the oil with

an alkaline material as suggested by Webster because a material with a reduced amount of sulfur will be obtained.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter D. Griffin whose telephone number is 703-305-3774. The examiner can normally be reached on Monday-Friday 6:30 to 4:00 with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 703-308-6824. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.

Walter D. Griffin
Primary Examiner
Art Unit 1764

WG
April 17, 2003